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Does the Fiscal Decentralization Promote Public Safety? Evidence from United States

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Abstract

This paper empirically investigates the effect of fiscal decentralization on public safety, which is widely taken as an important issue in evaluating the performance of public service. In addition, we provide evidence to the transmission channels of the decentralization effect. In a decentralized setting, the fiscal competition between jurisdictions motivates local governments to provide better crime control service, but as illustrated in this paper, the externality in the prevention of mobile crime can offset the beneficial effect of jurisdictional competition. Using panel data for the United States from 1990 to 2009, we find the fiscal decentralization generally lowers the crime rate, but the effect is smaller for mobile crime than immobile crime. The findings provide strong empirical support to our hypothesis and the underlying mechanism, and the results are robust to various fiscal decentralization measures and model specifications.

Key words: Fiscal Decentralization, Crime rate, Mobility of Crime

JEL Code: H54, H77, K42

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1 Introduction

During the last three decades, fiscal decentralization and local government reform has been at the center stage of policy experiments, not only for the countries with a traditional tendency of decentralizing, such as the United States; but also in a large number of developing and transition economies in Africa, Asia and Latin America (Yusuf, 1999). Fiscal decentralization, as a process to disperse the right of decision-making in public expenditure from central to the local governments, is widely believed to be an effective tool for increasing the performance of public expenditure, even though it may carry some risks of obtaining other desirable objectives for governments, such as income redistribution and macro-economic stability. Such linkage between government decentralization and the performance of public sector has been much debated in theoretical and empirical research. By far, a plenty of literature only focus on the economic outcome of fiscal decentralization, for example, Davoodi and Zou (1998); Xie, Zou, and Davoodi (1999) and Martinez-Vazquez and McNab (2003) discuss the impact of fiscal decentralization on economic growth, King and Ma (2001) studies the linkage between decentralization and inflation. However, fewer papers focus on the non-economic effect of fiscal decentralization. Current literature only covers fields like education, for example Nechyba (2003) and Falch and Fischer (2012); Sigman (2007) and Banzhaf and Chupp (2012) on the environmental federalism and Uchimura and Jutting (2009) on health outcome. To the best of our knowledge, no previous research investigates the impact of fiscal decentralization on crime control and public safety, which is a major social and economic issue. The present study investigates this linkage both in theory and empirics.

Public safety, as a fundamental freedom the government has to ensure[1], can be taken as an important criterion to evaluate the performance of public sector activities. Thus the impact on the public safety, which is measured by crime rate in this paper, is important in completely evaluating the efficacy of fiscal decentralization. So the first question to motivate the paper is what the basic facts about the impact of decentralization on the crime rate are. However, the impact is hard to capture because the conventional measure suffers from several problems. Therefore, we employ a new measure of fiscal decentralization to overcome the shortcomings of the traditional index, the preliminary findings are pretty inspiring. The casual inspection of state-level data from United States suggests a negative relationship between the crime rate and fiscal decentralization (as shown in Figure 1), the result holds not only for the total crime rate, but also for violent crime[2] and property crime[3]. However, by looking at the data for North Dakota, we

[1]The freedom from fear is one of the four fundamental freedoms that people "everywhere in the world" ought to enjoy, which are proposed by former president in the United States, Franklin D. Roosevelt.

[2]Violent crimes are defined in the UCR Program as those offenses which involve force or threat of force. It is composed of four offenses: murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault.

[3]Property crime is a category of crime in which the person who commits the crime seeks to do damage to or derive an

observe that the relationship is not found in all the states. From Figure 2, the linkage between fiscal decentralization and violent crime is negative, but the relationship is positive for property crime, and ambiguous for total crime. So how to explain the empirical findings of the decentralization effect on crime in theory? That is another question to trigger this paper.

Although hardly any research exists directly related to the topic, there are still a number of papers in the relevant fields shedding light on it. Two strands of literature are relevant to our work: one is the literature on fiscal federalism (cf. Oates, 1999); the other is the economics of crime (cf. Becker, 1968). The literature on fiscal federalism emphasizes that fiscal decentralization promotes the performance of public services. As stated in Lockwood (2005), the effect of jurisdictional competition has been illustrated from various perspectives in the theory of fiscal decentralization. The competition for a mobile tax base on one hand motivates the local governments to improve the performance of public service, on the other hands could be harmful due to the interjurisdictional externality. The analysis in our paper will mainly be based on this strand of literature. But since the crime rate is not only determined by the effort of government, the insights on the nature of crime, which are provided by the economics of crime, also help us in understanding the impact of fiscal decentralization on crime control. In the latter strand, some papers on jurisdictional competition and crime reduction are closest to the topic we are interested in. Marceau (1997) and Pinto (2007) highlight the role that mobility of crime plays in tax competition. Lee and Pinto (2009) emphasizes the substitution effect between public and private prevention on crime which may worsen public security due to the jurisdictional competition. Mehay (1977) and Hakim, Ovadia, Sagi, and Weinblatt (1979) provide evidence of spillover effects of crime prevention to neighboring jurisdictions. The literature on economics of crime also provides help for the choice of co-variates in our empirical work. To avoid the omitted variable bias, we choose the control variables mainly based on Moody and Marvell (2010)[4].

Our analysis indicates that fiscal competition between jurisdictions could lower the crime rate, but the externality in crime prevention might offset the function of competition, especially in the case of mobile crime prevention. The crimes which are committed both locally and cross-border are defined as mobile

unlawful benefit or interest from another's property without using force or threat of force. It includes the offenses of burglary, larceny-theft and motor vehicle theft.

[4] The effects of most co-variates on crime have also been empirically studied in the literature of second strand, for instance, Zimring and Hawkins (1993) and Levitt (1998) on incapacitation; Freeman (1987), Levitt (1997) and Gould, Weinberg, and Mustard (2002) on unemployment; Marvell and Moody (1994), Levitt (1996) and Tella and Schargrodsky (2004) on the effect of police on crime reduction.

crime in this paper, otherwise, the ones are rarely taken cross-border are immobile crime. Apparently not all kinds of crime are mobile, for example, the murder or rape is rarely committed cross-border in neighboring jurisdictions. The effect of fiscal decentralization on immobile crime is simply negative in theory, but the impact is ambiguous on mobile crime, it depends on whether the harmful effect of decentralization due to the crime control externality could dominate various kinds of the beneficial effects.

In order to empirically test the hypothesis, we employ a sample from 48 states in the United States for 1990-2009. We measure fiscal decentralization by density of local governments in each state, and employ a dynamic linear panel data model based on Arellano and Bond (1991) to estimate the effect of decentralization on the crime rate. The results suggest that fiscal decentralization lowers the crime rate, both in violent and property crime. The beneficial effect is systematically larger for violent crime than property crime. In general, as pointed out in Porter (1996), most cross-border crimes are associated with property crimes. Mehay (1977) and Hakim, Ovadia, Sagi, and Weinblatt (1979) also suggest that the spillover effects are mostly on property crime, rather than violent crime[5]. So the different impact on violent and property crime provides evidence to the hypothesized effect of externality due to mobile crime control.

The paper proceeds as follows. Section 2 presents our theoretical hypothesis on the impact of decentralization on crime control, Section 3 studies the measure of fiscal decentralization, the empirical specification and estimation method. Section 4 describes the data, data source and some basic facts. Section 5 provides the major empirical findings. Section 6 summarizes and concludes the analysis.

2 Theoretical Analysis

This section provides a theoretical underpinning of the linkage between fiscal decentralization and public safety. In the framework of the current literature on fiscal decentralization, we mainly focus on the effect of two externalities introduced by fiscal decentralization: fiscal externality and crime control externality. The fiscal externality refers to the beneficial or harmful impact of tax competition. The crime control externality is the spillover effect of controlling mobile crime. The two kinds of externalities are taken as main transmission channels of the impact on the crime rate. Since the deterrence effect is a major approach to reduce crime, we mainly analyze the function of the decentralization in police expenditure to illustrate, the decentralization in welfare system will be also shortly illustrated.

[5]So hereinafter, the mobile crime mostly refers to property crime, and the immobile crime refers to violent crime.

2.1 Fiscal Externality

Does fiscal decentralization in police expenditure promote public security? Most models in the relevant literature contend it does even if in different framework. Let us start with the assumption that governments are revenue-maximizing in a multi-jurisdictional world with mobile capital, fiscal decentralization will lower the crime rate and improve public safety because of the tax competition. Tax competition could be well modeled in the Cournot-like competition game. When the monopoly of central government is broken down, the local government faces the competition from its neighbors. For fear that the tax base flows to the other jurisdictions, the local government has to lower the tax rate and provide better public service, that is, to improve the government performance in terms of allocative efficiency and X-efficiency[6]. Fiscal decentralization actually can be taken as a process to introduce and intensify tax competition, then the local governments have to provide better service on public safety in lower cost in a decentralized setting, so as to ensure the tax base does not to flee to other jurisdictions due to the high crime rate. The mobility of tax base, in the framework of Brennan and Buchanan (1977), thus can be considered as a positive externality. It raises the competition for the tax base between jurisdictions, and thus lowers the crime rate.

Under the assumption that the governments are benevolent, the linkage between decentralization and crime rate also holds. Although in Zodrow and Mieszkowski (1986), public expenditure might be at an inefficiently low level in a decentralized setting, because local governments compete for capital by lowering their tax rate on capital, yielding a lower level of public service. However, the fear for the outflow of the tax base can also raise the expenditure to an efficient level. Marceau (1997) demonstrates that, given plausible assumptions, the threats of criminal behavior to the tax base could motivate the government to raise the provision of public service to the efficient level or even higher. Assuming the criminals can rob the mobile tax base, such as capital, the capital or the owner of the capital prefers to move to a safer jurisdiction. Even for some less mobile tax base, such as property, if the tax is an ad valorem tax, like the case in the United States, the serious problem of public security would drive the investors off and lower the price of the property. It could be also taken as an outflow of the tax base. In either case, the local governments have to raise public spending, at least on public safety issues, in order to ensure its own tax base in such a competition. Therefore, as a process to introduce tax competition, the fiscal decentralization creates an incentive for local government to reduce crime[7]. Moreover, Besley (1995) illustrates the importance of

[6]The improvement in allocative efficiency is defined as the adjustment in structure of public expenditure towards the optimal allocative condition. Given the expenditure to each kind of public project, the improvement in the performance of public service can be taken as an increase in X-efficiency.

[7]In other words, assume the tax rate and the spending on public safety can be efficiently offered by central government, then in a decentralized setting, the provision by each local governments will be also efficient. Otherwise, if one local government lowers the tax rate to compete for tax base, the tax base actually will not flow to the jurisdiction due to the worse safety

property rights protection to facilitate investment. By increasing its effort in deterrence, a jurisdiction can attract investments that would otherwise locate in other jurisdictions, so the government has a motivation to set the public expenditure on safety issue to the level even higher than efficient in the tax competition.

Keen and Marchand (1997) show that, for fear of capital flowing to neighboring jurisdictions, the local government might even distort the structure of public expenditure. More expenditure goes to the capital-related public service, so that too little is spent on other projects. So in a decentralized setting, if the main source of revenue for local government is the property or capital tax, as is the case in the United States[8], the local government may spend more on policing or other projects on crime control, in order to prevent the outflow of the tax base or attract investors.

As a brief summary, the mobility of the tax base creates a positive fiscal externality, which pushes the local government to raise its public spending on safety issue in a competition for tax base. Fiscal decentralization introduces or intensifies tax competition, so that lowers the crime rate. However, since capital is not only sensitive to crime, but also the tax rate, it is less likely to impose a much higher tax rate in the decentralized setting than in a centralized one. According to Qian and Roland (1998), the competition for capital can also motivate governments to reduce their corruption, waste, or other kinds of X-inefficiency, in order to provide more public services. So in practice, it is more possible for the government to promote public safety by raising the X-efficiency of public spending rather than expanding its size.

Similar to the case of fiscal externality in the decentralization of police expenditure, jurisdictional competition will also affect the size and efficiency of the public spending on welfare projects. For fear that the tax base flows to safer jurisdictions, local governments have to improve their public service on welfare projects. Therefore, total crime is expected to be lower and public safety could be promoted.

2.2 Crime Control Externality

In addition to fiscal externality, the mobility of crime creates other kinds of externalities which can also affect the public service on the control of crime, in particular, the cross-border crime. As illustrated above, the mobility of crime here is defined as the feasibility or possibility of a crime to be committed cross-border in neighboring jurisdictions. So the mobile crimes are the ones which can be easily committed both locally and cross-border, and the immobile crimes are local in nature. Although the theory on offender mobility

situation, who is reluctant to move to a jurisdiction in which the welfare cannot be optimized to efficient level? Hence, without the flow of tax base and tax competition, the spending on crime control in each local government will be still efficient, and won't be lowered due to the fiscal decentralization. The main difference between here and Zodrow and Mieszkowski (1986) is that, the low tax rate can lead to the loss of tax base, so the flow of tax base is not beneficial to the owners.

[8]In the United States, the main tax collected by local governments is property tax, which is imposed on real estate or other kinds of properties.

and target selection suggests, according to Padhy (2006), the distances traveled by offenders from homes to crime sites won't be very long, the criminals still may avoid targets adjacent to their homes to avoid being easily recognized and arrested. Especially, based on Morselli and Royer (2008), greater distances traveled for crime are generally associated with higher criminal earnings. Therefore, the property crimes are easier to be committed cross-border than violent crimes, the conclusion is in line with the finding of Porter (1996), most cross-border crimes are property-related. Also according to Porter (1996), the cross-border crimes don't rarely happen, based on three large scale surveys in UK, 10% of detected crimes are cross border in nature, most are property crime.

Due to the mobility of the cross-border crime, the policy on crime control can generate spillover effect between jurisdictions. If the government of a local jurisdiction provides better public service on police, no matter through expanding expenditure or raising X-efficiency, the mobile crime rate would be lower for two reasons: first, a criminal deterred from committing a crime in this jurisdiction may simply change to commit it in another, that is, the displacement effect or spillover effect; second, more criminals are captured or stop committing crimes for fear of being arrested. Due to the first effect, the crime rate of neighboring jurisdiction will be increased. In Pinto (2007), the author takes the displacement effect as an incentive for the local government to control crime. That is, if a jurisdiction improves the public safety service, the others have to follow up. Otherwise more criminals, especially those who commit mobile crimes, will flow to the jurisdictions with lower expenditure or efficiency, then worsen the public safety further. So in equilibrium, the externality of mobile crime creates a jurisdictional competition of crime control, the performance of each jurisdiction in public safety thus has to be improved, especially on the mobile crime control. Since the fiscal decentralization aggravates the crime control competition, the mobile crime rate could be accordingly lower. However, the mobility of crime does not only lead to a beneficial externality, but also a harmful one. The second effect would cause the free riding problem. Since the mobile criminals are the threats to the public safety of all the local jurisdictions, the more criminals are captured or deterred, the lower the crime rates are in all the jurisdictions. However, in a decentralized setting, if all the local governments expect the crime control activities of neighbors could reduce mobile crime in their own territory, they will be intended to lower their own expenditure or efficiency on mobile crime control. In equilibrium, the government performance on public safety will be worse, and the crime rate would be risen.

Another kind of harmful externality is the cost inefficiency in controlling the mobile criminals. For reducing mobile crime, such as vehicle theft, burglary and larceny, the central government has cost advantage. Assuming each local government has to spend k to capture mobile criminals, even the ones

who move to other jurisdictions, and deter the people who possibly take up illegal behaviors in its own territory. However, if the central government takes up such work, the total cost could be lower than nk, if there are n local jurisdictions within the federation. It is because the efficiency in information sharing, organization and coordination could be improved in a centralized regime. The redundant projects or fixed cost each local government has to spend also can be reduced, so that the waste in crime control can be minimized. However, such cost advantage for central government indicates the cost of mobile crime control for each local government is too high. The decentralized project of public safety makes the coordination in information about crime difficult[9], and creates barriers to the cooperation in legal actions. So in a decentralized setting, the local governments prefer to spend more on immobile crime reduction, or other alternative projects. The mobile crime thus might be higher after police decentralization.

Therefore, unlike the case of immobile crime, the impact of fiscal decentralization is not necessarily beneficial, but also has its "dark" side to the mobile crime control. The spillover effect of mobile crime could motivate the local governments to provide better police service in a decentralized setting, but also demotivate the crime control due to the problem of free riding and cost inefficiency. So in total, the effect of fiscal decentralization is ambiguous to the mobile crime control.

Close to the case of police expenditure, welfare expenditure also has free riding problem. If the welfare expenditure in a neighboring jurisdiction is beneficial in reducing mobile crime by increasing the expected opportunity cost of the criminals, the local government may have less motivation to pay money or effort on welfare projects. Then in equilibrium, welfare expenditures would be lower. Since the welfare projects are difficult to be specific to certain kind of criminals, the total crime would be accordingly increased, but the different effects on mobile and immobile crime are hard to be observed.

2.3 Hypothesis

All in all, the fiscal externality provides incentive for the local governments to reduce crime, both mobile and immobile crime. However, the effect of the crime control externality is ambiguous, it both provides the incentive and disincentive to the control of crime, particularly mobile crime. Thus we hypothesize:

HYPOTHESIS: *The effect of decentralization on total crime is ambiguous, the fiscal externality reduces the crime rate, whereas the crime control externality might raise it. More specifically*

(a) *Decentralization decreases the rate of immobile crime because only fiscal externality matters.*

(b) *The ambiguous effect on mobile crime is depending on how much the harmful effect of decentralization due to the crime control externality can offset the beneficial effect.*

[9]Therefore, it is difficult to spot patterns and crime sprees committed by the same offender over multi-jurisdictions.

In the empirical study, we aim to estimate the effect of fiscal decentralization on total crime, property crime, violent crime as well as several sub-categories of crime, and see if there is any evidence to our hypothesis. The transmission channel is another interest in this paper. The different patterns of impact on violent crime and property crime can help us to explore and measure the effects of the fiscal externality and the crime control externality, respectively.

For immobile crime, there is no crime control externality to offset the function of jurisdictional competition, the fiscal externality effect is isolated, and thus can be identified by the impact of police decentralization on immobile crime. Therefore, if immobile crime is reduced by decentralization, the effect of the fiscal externality is proved empirically, otherwise, the effect at least cannot be captured by our estimation. In contrast, the crime control externality can only affect mobile crime, so the effect of such an externality could be identified by comparing the impact of police decentralization on immobile and mobile crime. If the effect of fiscal decentralization is significantly different between the mobile and immobile crime, the difference in coefficients could be taken as evidence for the effect of the crime control externality.

As illustrated above, most mobile crime are property related, so the coefficients to police decentralization on violent and property crime are crucial here in exploring the transmission channel behind the impact of decentralization. Moreover, it is worth to mention that our strategy in empirical study cannot apply to welfare decentralization, since the welfare projects are not specific to certain criminals, at least the crime control externality cannot be identified by the difference between the impacts on mobile and immobile crime.

3 Estimation Strategy

3.1 Measuring Fiscal Decentralization

The conventional measure of fiscal decentralization in the literature is the share of sub-national government expenditures in general government expenditures.

$$FisDec_T = \frac{local\ expenditure}{total\ expenditure} = \frac{local\ expenditure}{local\ expenditure + state\ expenditure} \tag{1}$$

where T in subscript stands for the traditional measure[10]. However, the measure is not appropriate to employ in this context for three reasons. First, as pointed out in Martinez-Vazquez and McNab (2003) and Frey and Luechinger (2004), there are two dimensions of fiscal decentralization: "policy implemen-

[10]Sometimes this measure is described in terms of revenue.

tation" and "political decision-making"[11]. The traditional measure can only capture the decentralization in actual government spending/revenue, that is, with the rise in $FisDec_T$, a larger share of government expenditure/revenue is raised by local governments. But fiscal autonomy cannot be well measured if local governments have a few autonomous revenue sources or freedom to decide how to allocate its spending[12].

Another disadvantage of the conventional measure is the potential endogeneity problem, which commonly occurs in the literature on fiscal decentralization. In the postwar period, the aim of decentralizing the fiscal system for the government is very possible to be promoting the efficiency of public service, especially in the countries with a traditional tendency of decentralization, such as United States. Therefore, the degree of decentralization is probably endogenous with the efficiency of public service due to reverse causality bias. Specifically, it is possible that the purpose of the decentralization in police and welfare expenditure is to improve the public safety situation, so that the degree of decentralization is endogenous with the crime rate. If we cannot rule out the possibility, we have to find a new measure, which is more likely to be exogenous allowing us to measure the effect of fiscal decentralization on crime, otherwise, the estimation might be inconsistent.

The traditional measure is particularly problematic when we use data for the United States. In this paper, we will measure the impact of decentralization by the variation in the degree of decentralization among the 48 states in the United States over 20 years. In the context of the United States, the state governments are defined as central governments, then the county and sub-country level governments are local. However, the impact of decentralization from state to local is biased to be measured by the conventional index due to the functional division in the U.S. fiscal system. According to Wilson (2011), in the United States, the sales tax and income tax are collected by state governments, and are mainly used in funding public welfare projects and the state-level police projects, education and state-level police. The property tax is collected by local governments and is used to fund the local public services, primarily including local police expenditure. Due to the functional division, the transfers from state to local, both in welfare and police expenditure, are relatively trivial. The coefficient to the conventional index, $FisDec_T$, thus mainly captures the impact of functional division, rather than fiscal decentralization.

In order to avoid the three problems of the traditional measure, we employ a new measure, that is, *government density*, to capture the effect of fiscal decentralization on public safety. The basic idea of the measure is to capture the mergers and splits of sub-county governments[13] in the United States. During the last two decades, there are more than 200 sub-county governments "born" in United States. For example,

[11] The difference is "the right to act" or "the right to decide"

[12] The OECD (1999) measure does capture policy autonomy but still fails as the conventional measure in solving endogeneity and the other relevant problems.

[13] The sub-county governments are mainly city and town governments.

in the period from 1992 to 1997, the number of sub-county governments increased from 11 to 12 cities in Baldwin County in Alabama, that is, one more city was born. The case also applies to Orange County in California, during 1997 to 2002, the number grows from 31 to 33. Since the number of counties in the United States hardly changes, the change in number of sub-county governments is mainly from city split, which could be taken as an extreme case of fiscal decentralization. In this case, the fiscal revenue and autonomy are purely decentralized from the old city to the new cities . Thus for the time-series data of each state, the more cities split, the more fiscal capacity to decide and implement are decentralized. The logic also applies to cross-state data, more local governments in a state indicate more splits of cities or towns happened already. It means the fiscal capacity on the local level has been decentralized to a higher degree. Thus the fiscal externality, namely, jurisdictional competition between cities becomes more intense, because more local governments are involved. The crime control externality may also get severe due to the more serious problem of "coordination failure".

Unlike the traditional index, we don't use the decentralization from the state level government to the local level to capture the impact on public service. The case we employ is the decentralization on the local level, that is, the splits of city. In this case, the endogeneity problem is more likely to be avoided, since the purpose of city split is hard to be crime reduction. The concern for function division is also settled, because we do not use any data on the decentralization from state to local government. Moreover, since such an event as the split of a city is large enough to cause the change in various aspects, especially in the public service, it is very possible to capture the effect of the decentralization by the data on the splits. Therefore, we use the variation in the number of local governments to explore the effect of decentralization on public safety. Note that, the cross-state difference in the number of cities or towns may be due to the size of states. Therefore, in order to ensure the measure is comparable among states, we have to control for state size. We use the population, size of land area and Gross State Product (GSP) as control variable, respectively,

$$FisDec_P = \frac{number\ of\ governments}{population} \quad , \tag{2}$$

$$FisDec_G = \frac{number\ of\ governments}{gross\ state\ products} \quad , \tag{3}$$

$$FisDec_L = \frac{number\ of\ governments}{land\ area} \quad . \tag{4}$$

The measure captures the density of local government in real terms. Compared to the traditional

measure, there are several advantages to the new index. First, it measures the impact of fiscal decentralization, rather than functional division. This advantage is particularly important for United States data. Second, the new measure is more likely to be exogenous, especially in this article, because the division of sub-county governments is hardly affected by the public safety situation. However, among the three measures, $FisDec_L$ is most likely to be exogenous, since the land size is constant for each state at least during the last two decades. The $FisDec_P$ is also very likely to be exogenous, since the common factors that can affect the crime rate and population are limited, particularly in the last 20 years in the United States. Whereas $FisDec_G$ is less likely to be exogenous compared to the other two measures, but still can be referred to as a robustness check.

3.2 Specification and Estimation Method

In the empirical part of this paper, we will explore the impact of fiscal decentralization on the crime rate built on the framework provided by the current literature on the economics of crime. The specification of regression is based on Moody and Marvell (2010). Compared with the static model, the dynamic model could better describe the determinants of criminal behavior. So a Dynamic Linear Panel Data Model is employed:

$$y_{ijt} = \gamma y_{ijt-1} + \beta' \mathbf{x}_{it} + \mu' \mathbf{z}_{it} + \alpha_{ij} + \varepsilon_{ijt} \tag{5}$$

where $j = 1, \ldots, J$, $i = 1, \ldots, I$ and $t = 1, \ldots, T$. Specifically, we estimate the effect of decentralization in state i at time t on crime j. Our dependent variable y is various levels and categories of crime. Mainly we focus on total crime ($TotCri_{it}$), property crime ($ProCri_{it}$) and violent crime ($VioCri_{it}$), as illustrated in the theory part of this paper, the coefficients in these three regressions are crucial both to estimate the effect of decentralization on crime, and to test the hypothesized mechanism behind the impact. In order to get more robust conclusions, some sub-categories of crime will be investigated, such as murder ($Murder_{it}$), rape ($Rape_{it}$), robbery ($Robbery_{it}$), burglary ($Burglary_{it}$), larceny theft ($Larceny_{it}$) and vehicle theft ($Motheft_{it}$). In the estimation, we use the logarithm form of the crime rate for two reasons, firstly the crime rate is bounded by zero, so hardly taken as normally distributed. After the log-transformation, we could obtain a normal distribution, which is advantageous in estimation to some extent; secondly, the transformation makes the coefficients more comparable, in the logarithm form, the estimated parameter measures the effect of variables by percentage rather than absolute value. The number of the property crime is in general higher than the violent ones, hence it is necessary for us to transform the dependent variables to a comparable form.

$\mathbf{x}_{it}$ is a matrix of variables to measure the degree of fiscal decentralization, and captures the transmission

channels. The decentralization is mainly measured by $FisDec_{Pit}$, the density of local government in each state at each year. $FisDec_{Lit}$ will not be taken as a major index to measure due to less variation. As shown in Table 1, the coefficient of variation indicates that, compared to the other two indices, $FisDec_{Lit}$ is probably hard to capture the impact since its variation is too small. $FisDec_{Git}$ will be employed, however, since it is more likely to be endogenous, we will only consider it in the robustness check. The transmission channels will be captured by the interaction term $FisDec_{Pit} \times PolExp_{it}$ and $FisDec_{Pit} \times WelExp_{it}$, where the $PolExp_{it}$ and $WelExp_{it}$ are the total expenditure on police and welfare projects for state i at time t. The coefficient to the interaction term $FisDec_{Pit} \times PolExp_{it}$ also can provide key evidence to the hypothesized effects: competition effect and externality effect.

$\mathbf{z}_{it}$ is the matrix of co-variates, which could be mainly divided into two kinds. The first is deterrence variables, such as prisoners per capita ($Prisonerpc_{it}$). More prisoners in general means higher pressure of deterrence and higher expected cost of punishment. Death penalty is supposed to be included, however Donohue and Wolfers (2006) suggests that there is no compelling evidence of a deterrent effect of executions, particularly in the countries with serious control on the punishment, so the capital punishment is excluded in the set of co-variates.

The second class of variables is socioeconomic controls, such as income, unemployment rate, poverty, inequality index, and so on. According to Western (2007), the evidence of effect of inequality on crime is not compelling, especially in the U.S., some impact of inequality has been offset by welfare policy. So the inequality (Gini index) is not taken into the specification. Another reason for the exclusion is to avoid the problem of multi-collinearity, because inequality is somehow correlated with poverty rate. The co-variates we choose in this class are mainly based on Moody and Marvell (2010), including disposable income per capita ($Incpc_{it}$), unemployment rate ($Unemp_{it}$), poverty rate ($Poverty_{it}$, the share below poverty line). In general, low-income or unemployed people are more likely to search for illegal opportunity of income. The people in poverty are not only motivated to commit crime by financial constraints, but also inequality in society.

Some relevant variables are also taken into the specification, such as education attainment (Edu_{it}, which is defined as the rate of high school graduate), tax rate ($IncTax_{it}$, which is defined as the top marginal personal income tax rate) and divorce rate ($Divorce_{it}$). Based on Lochner (2004), the education attainment raises the opportunity cost of committing crime, so that it lowers the crime rate. In contrast, the income tax rate, according to Tabbach (2003), worsens the public safety condition because the opportunity cost of criminal behavior is lowered. The divorce rate mainly measures the malfunctioning of family in social stability, as pointed out in Caceres-Delpiano and Giolito (2012), it can increase the crime rate through

various channels. Some other socioeconomic variables can be covered by the fixed effect term α_{ji}, if these variables are time-invariant, at least over a short time span.

A problem that has to be addressed is the endogeneity of police expenditure, $PolExp_{it}$, due to the simultaneous causality bias. As we know, police spending can lower the crime rate, but police spending can be high if the security situation is too bad. Thus the spending on policing is endogenous with the crime rate. In order to solve the problem, we employ the expenditure on fire protection as the instrumental variable for police spending. As illustrated in Levitt (2002), factors such as the power of public sector unions, citizens tastes for government services, affirmative action initiatives or the politician's desire to provide spoils might all be expected to jointly influence the expenditures of firefighters and police. Empirically, changes in the expenditures on police and fire protection within a state are highly correlated. Therefore the expenditure on fire protection does not depend on crime, but is correlated with police spending. So it can fulfill the relevance and exogeneity requirements of instrumental variable.

Since the dataset is a short and wide panel (N is large and T is fixed), we could take the difference and system generalized method of moments (GMM) estimation to fit the dynamic linear panel data model. In our estimation, we use the difference GMM estimator raised by Arellano and Bond (1991) rather than system GMM estimator for two main reasons. One is that γ is far less than unity, that is, the autoregressive process of dependent variable is not too persistent, then the lagged-levels are not weak instruments, so the estimator is consistent. The other is that the system GMM estimator suffers from the problem of too many instruments more than the Arellano-Bond estimator. According to Roodman (2009), too many internal instrument variables (IV) will overfit the endogenous variables, and cause false-positive bias. The difference GMM estimator employs fewer IVs than the system one.

The moment conditions are created in the first difference form of Eq (5),

$$\triangle y_{ijt} = \gamma \triangle y_{ijt-1} + \beta' \triangle \mathbf{x}_{it} + \mu' \triangle \mathbf{z}_{it} + \triangle \varepsilon_{ijt} \tag{6}$$

The lagged levels of the dependent variable and the first difference of the error term form the main source of moment conditions, the first difference of strictly exogenous co-variates are also helpful. For the consistency of the estimation, the two necessary conditions also have to be tested for Arellano-Bond estimation. The first one is the Sargan test for overidentification. The other is the Arellano-Bond test for the uncorrelation of error term, if it fails, the moment condition cannot hold.

4 Data

4.1 Data Source and Descriptive Statistics

Our sample consists of data drawn from various sources, it in general covers 48 states[14] in the United States from 1990 to 2009. The data on government expenditure are from the *Bureau of Census in United States*. The crime data are from the *Uniform Crime Reports* issued by the *Federal Bureau of Investigation* (FBI), The UCR data we use consist of information at the state level for the seven types of crimes that are considered most important because of their nature or volume among all offenses (Part I offenses). These felonies are classified into two groups: Violent Crime and Property Crime. Violent crime includes murder, forcible rape and robbery. Property crime includes burglary, larceny-theft, motor vehicle theft, and arson. Since we will employ the fire protection expenditure as the instrument variable to the police expenditure, we don't take arson into our consideration, and exclude it from $TotCri_{it}$ and $ProCri_{it}$ as well.

The data on education attainment, unemployment rate, prisoner per capita, tax rate and number of local government are all from the *Bureau of Census in United States*. The divorce rate data are from *Center for Divorce Control and Prevention.* The data on disposable income and population are from the *Bureau of Economic Analysis*. The research suffers a bit from data limitation for some variables. According to the summary statistics presented in Table A1, the data on fire protection spending, which is crucial to estimate the effect of police expenditure are not available on 1990, 1991, 2000, 2002, 2006 and 2009. However, the sample size is still sufficient to support the following empirical studies[15].

The summary statistics on contributions are also revealing. From Table A2, $FisDec_P$ varies from 0.01 to 2.69, the coefficient of variation indicates that the source of variation is sufficiently rich. We also calculate the coefficient of variation for each state in Table A5, which has proved that the variation is not only from the time series, but also the cross section data. The correlation matrix helps us in expecting some potential problem in the empirical study. The correlations between $FisDec_P$ and interaction term $FisDec_P \times PolExp$ and $FisDec_P \times WelExp$ are 0.9731 and 0.9499, respectively. That indicates the possibility of multi-collinearity in the regression, which might do harm to the efficiency of estimation.

4.2 Preliminary Look at the Data

From the descriptive statistics, the effect of fiscal decentralization on crime is already evident in our data. Figure 1 suggests that the degree of decentralization is negatively correlated with total crime, violent

[14] Alaska and Hawaii are excluded.
[15] The results are robust even if using the dataset established by interpolation.

and property crime. The fitted line is steeper for the violent crime than property one, which indicates a larger beneficial effect on violent crime. The result is robust when we eliminate the sample points with a higher degree of decentralization than unity. Although preliminary, the graph provides the basic answer to the question we raise in the beginning: the fiscal decentralization can in general promote public safety. The different patterns of impact on property crime and violent crime also shed light on the transmission channels. The negative impact of decentralization on violent crime, which is less mobile, indicates the existence of fiscal externality. The smaller effect on property crime than violent crime provides us the clue of the crime control externality in the process of decentralization.

Table 2 shows us the difference in crime rates between the groups with high and low degree of decentralization. We employ all the three measures of fiscal decentralization, $FisDec_P$, $FisDec_G$ and $FisDec_L$, the results indicate that, the total crime rate, violent crime rate and property crime rate are all higher in the group with lower decentralization degree; in contrast, in the sample which is more decentralized, all kinds of crime are better controlled. It provides further evidence to the beneficial effect of decentralization on crime control. However, since too many relevant variables have to be controlled, the more complete and convincing conclusion has to be drawn from the econometric study in the following part.

5 Estimation Results

We have two major aims in our empirical analysis. We begin with exploring the effect of fiscal decentralization on the crime rate and its pattern of impact. In the second sub-section, we will explore and measure the transmission channels based on the estimation results.

5.1 Effect of Fiscal Decentralization

To explore the effect of fiscal decentralization on the crime rate, we begin with examining the effect on the total crime rate. Table 3 provides us the estimation results of various specifications. Column 1 is the specification without co-variate, the coefficient to $FisDec_{Pit}$ is significantly positive, but the Arellano-Bond test suggests that the autocorrelation of the error term cannot be neglected. So the estimation is possibly inconsistent. Column 2 only includes the co-variates from Moody and Marvell (2010), the coefficient to $FisDec_{Pit}$ turns out to be negative, and significant at the 1% level. The result indicates that fiscal decentralization in general can improve public safety. However, the estimation also suffers from the autocorrelation problem in error term, and there might be also an omitted variable bias. As a result, the coefficients to some co-variates make less sense, for example, the positive coefficient to the

$WelExp_{it}$, which is supposed to be negative. Therefore, we include more co-variates to the regression. In Column 3, the effect of fiscal decentralization is significantly negative, which further confirms the previous finding in descriptive statistics and preliminary estimation. The coefficient to $FisDec_{Pit}$, -2.7130, could be interpreted as, a rise in the degree of fiscal decentralization by one unit can lower the total crime rate by 2.71%. In this regression, both the Arellano-Bond test and Sargan test are passed, and the coefficients to co-variates are in line with the predictions in theory.

Following the same approach, we investigate the effect of fiscal decentralization on violent crime and property crime respectively, which are reported in Table 4. The effect of decentralization on property crime is significantly negative, so is the effect on violent crime. The regressions in Column 3 and 6 take all the co-variates into consideration, so the Arellano-Bond test and Sargan test for them are also passed. An interesting pattern has to be noticed is the difference in the decentralization effect on violent and property crimes. The coefficient in the regression of property crime is -1.9540, the one for violent crime is -5.5920, which indicates a larger beneficial effect on violent crime. Considering the similar standard deviation around 0.770, the difference in coefficients is statistically significant.

The pattern is consistent with what we find in Figure 1, and could be well interpreted in our theoretical framework. The negative effect of fiscal decentralization indicates the beneficial externality, such as fiscal externality, displacement effect, dominates the harmful externality for both violent crime and property crime. As illustrated above, the mobility of property crime is in general higher than violent crime, so the control on property crime causes more harmful externalities than the violent one. Therefore, the beneficial effect on violent crime is larger than the property crime[16].

In the next step, we distinguish the impacts of the decentralization through raising X-efficiency from other channels by adding interaction terms into the specification. Table 5 reports the estimation results, Column 1 examines the effect on total crime rate, the coefficient to $FisDec_P$ is negative and significant in 1% level. The coefficient to $PolExp \times FisDec_P$ is also negative, but the coefficient to $WelExp \times FisDec_P$ is insignificant. To interpret the regression results of coefficients, we would better transform the interaction term and level terms

$$\beta_1 FisDec_{Pit} + \beta_2 PolExp_{it} + \beta_3 PolExp_{it} \times FisDec_{Pit} \tag{7}$$

into the form as

$$\beta_1 FisDec_{Pit} + (\beta_2 + \beta_3 FisDec_{Pit}) \times PolExp_{it} \tag{8}$$

[16] As a robustness check, we apply the specification in Table 4 to six sub-categories of crime. The results, which are reported in Table A4, generally support the conclusions drawn from Table 4, although the significance is weaker. The beneficial effect of fiscal decentralization is generally larger for violent crime than property one.

β_3 indicates the effect of fiscal decentralization on crime rate by changing the effect of police expenditure. That is, given the amount of police spending, the fiscal decentralization can change its impact on crime reduction. Through this channel, fiscal decentralization could affect the crime rate even if the size of expenditure does not change. We could take it as a rise (or fall) in the X-efficiency of public spending on the police system[17]. Furthermore, β_1 measures the effect of fiscal decentralization on crime through other channels, mainly raising the expenditure on welfare and police projects.

As the variable of our primary interest, Table 5 reports a negative coefficient to the interaction term $PolExp_{it} \times FisDec_{Pit}$, which indicates the rise in the X-efficiency of police expenditure in the process of fiscal decentralization. The decentralization effect through other channels is also negative and significant. But the coefficient to $WelExp_{it} \times FisDec_{Pit}$ is not significant, it indicates a less significant improvement in the X-efficiency of welfare expenditure. The results can be interpreted by our theory. The beneficial externality dominates the harmful one, such as cost inefficiency and the free riding problem, in police decentralization, so that raises the X-efficiency of police expenditure and lowers the crime rate in total. The competition effect also prevails in other channels, mainly through raising the expenditure on welfare and police projects, thus the coefficient to level term $FisDec_{Pit}$ is significantly negative. However, the beneficial effect of welfare decentralization has been offset.

The results for property crime and violent crime are reported in Column 2 and 3 of Table 5. For property crime, the coefficients to all the variables we are most interested in are negative, but the one for the level term $FisDec_{Pit}$ is insignificant. The estimation indicates that fiscal decentralization improves the property crime control mainly through raising the X-efficiency of welfare and police expenditure, rather than other channels. For violent crime, the coefficients to $FisDec_{Pit}$ and $FisDec_{Pit} \times PolExp_{it}$ are negative and significant for violent crime, but the coefficient is insignificant to $FisDec_{Pit} \times WelExp_{it}$. So the decentralization plays its impact largely through raising the X-efficiency of police service and some channels like expanding expenditure on public safety projects. But the X-efficiency of welfare spending in reducing crime is not strongly improved by the decentralization.

The difference in the pattern of impact between violent crime and property crime is still significant for $FisDec_{Pit}$ and $FisDec_{Pit} \times PolExp_{it}$, which can be explained by the harmful externality of mobile crime control. In contrast, the different patterns cannot be observed for the welfare decentralization, at least for the interaction term $FisDec_{Pit} \times WelExp_{it}$. It is also reasonable because the welfare spending is hard to be very specific to certain kinds of crime, then the effect of welfare decentralization might be not larger

[17] The approach of interpretation also applies to the case of welfare decentralization.

for violent crime than property crime.

However, as illustrated in last section, there might be a problem of multi-collinearity in the regression with the three terms: $FisDec_{Pit}$, $FisDec_{Pit} \times PolExp_{it}$, $FisDec_{Pit} \times WelExp_{it}$, since they are highly correlated. Therefore, in Table 6, we report the estimation results of regression with only interaction term[18]. After tackling the problem of multi-collinearity, most of the coefficients becomes significant and in line with our expectation. In the first column of Table 6, the coefficients to $FisDec_{Pit} \times PolExp_{it}$ and $FisDec_{Pit} \times WelExp_{it}$ are negative, which indicates the beneficial effect raises the X-efficiencies in both kinds of public spending, and dominates the harmful externality. The coefficient to $FisDec_{Pit} \times PolExp_{it}$ is -3.2020, which means a rise in $FisDec_{Pit}$ by one unit can lead to a fall in the crime rate by 0.19% on average only by raising the X-efficiency of police expenditure. Similarly, the coefficient of $FisDec_{Pit} \times WelExp_{it}$ is -0.3170, which indicates the beneficial effect of decentralization is 0.23% on average by raising the X-efficiency of welfare system.

Column 2 and 3 report the estimation for property crime and violent crime, respectively. The coefficients to both $FisDec_{Pit} \times PolExp_{it}$ and $FisDec_{Pit} \times WelExp_{it}$ in column 2 are negative, but the former one is not significant. In Column 3, the coefficients to the variables of our primary interest are both negative and significant at the 1% level. After solving the multi-collinearity problem, the significance of estimation is improved, and the beneficial effects of decentralization on both kinds of crime are apparent to observe. Moreover, the magnitude of coefficients is larger for violent crime than property one, since the harmful externality offsets the beneficial externality for the mobile crime.

For further robustness check, we estimate the effect of fiscal decentralization on six sub-categories of crime by the specification in Table 6. Murder, forcible rape and robbery are typical violent crimes, burglary, larceny theft and vehicle theft are property-related crimes. The results are shown in Table 7. The coefficients to $FisDec_{Pit} \times PolExp_{it}$ for all kinds of crime are negative, and only insignificant for burglary and vehicle theft. The estimated parameters to $FisDec_{Pit} \times WelExp_{it}$ are almost negative, except that for robbery, and the significances are not sufficient in the regression of rape, burglary and vehicle theft. The total effect of fiscal decentralization on each kind of crime is negative, even for robbery, since the effect of decentralization in policing is much larger than that in welfare projects. Similar to the results in Table 5, the different effect on violent crime and property crime, which is found in Figure 1, can be observed in police decentralization, rather than welfare decentralization. The coefficient to $FisDec_{Pit} \times PolExp_{it}$ for murder is -9.3470, that for rape is -9.6400 and it is -6.8050 for robbery. All the three coefficients are significant at the 1% level. In contrast to property crime, only the coefficient for larceny theft is significant, and the magnitude is -7.3350, which is not different from the smallest coefficient

[18]It means we only focus on the impact of decentralization on crime control through raising the X-efficiency.

for violent crime. So the beneficial effect of police decentralization is generally larger for violent crime than property one.

As a final test for robustness, we employ $FisDec_G$ as measure of fiscal decentralization to re-estimate the impact. The results are shown in Table A3. The specification in the first two columns follow the one in Table 4. The coefficients to $FisDec_G$ are both negative and significant for violent crime and property crime. The only concern is the difference in magnitudes for the two coefficients is not so significant. The third and fourth columns follow the regression in Table 5, the estimated parameters to all the three variables in which we are interested are negative for violent crime and property crime, although that to $FisDec_G$ for violent crime and $FisDec_{Git} \times PolExp_{it}$ for property crime are insignificant. The difference in the beneficial effect on violent and property crime is easy to capture for both interaction terms. Column 5 and 6 report the results of the regression which follows the one in Table 6. The coefficients to $FisDec_{Git} \times PolExp_{it}$ and $FisDec_{Git} \times WelExp_{it}$ are significantly negative for both violent and property crime. Therefore, fiscal decentralization can help in reducing crime by raising the X-efficiency of police expenditure and welfare expenditure. The coefficients for both interaction terms are larger for violent crime than property crime, which could be interpreted as the harmful externality to the property crime.

In summary, the estimation results suggest that the fiscal decentralization could lower the crime rate, the conclusion applies to total crime, property crime, violent crime and all sub-categories of crime. Due to the externality to property crime control, the beneficial impact of decentralization is in general lower for the property crime than the violent one, the pattern is robust when we estimate the effect on six sub-categories of crime. In particular, the difference between violent and property crime is easy to observe in the decentralization of police expenditure, since the welfare expenditure is hard to be specific to certain types of criminals.

5.2 Transmission Channels of Decentralization Effect

As illustrated in our theoretical analysis, the estimation results also help to empirically prove the existence of fiscal externality and crime control externality. Since there is no crime control externality to the immobile crime, which is mainly violent crime, the effect of decentralization on violent crime could be totally taken as the impact of fiscal externality. So if the estimated parameter is negative, the result could be taken as evidence to the fiscal externality, and the magnitude of the coefficient could measure the size of such an externality. Moreover, since the crime control externality only affects the property crime, if the coefficient to $FisDec_{Pit}$ is smaller for property crime than violent crime, the evidence of such externality is found in empirics, and the difference between the two coefficients could be taken as the measure of

the crime control externality. In addition, the fiscal externality and crime control externality could be more significant to observe in the police decentralization, since the welfare expenditure is hard to aim at reducing certain kind of crime, then the two effects are difficult to be identified in welfare decentralization.

The descriptive statistics have provided the preliminary evidence to the fiscal externality and crime control externality. Table 4 formally tests it in a dynamic linear model. The coefficient to $FisDec_{Pit}$ is negative for violent crime, which provides evidence to the competition effect. The beneficial effect on violent crime control is larger than that on property crime. The result offers the empirical support to the existence of a crime control externality. The smaller coefficient for property crime also indicates in total the crime control externality generates a harmful impact on crime control, that is, the displacement effect is dominated by the free riding effect and cost inefficiency.

The effects of fiscal externality and crime control externality can be further captured in Table 6. The coefficient to $FisDec_{Pit} \times PolExp_{it}$ for violent crime is -4.6560, and that for property crime is -2.0090. The negative parameter for violent crime proves the existence of fiscal externality in raising the X-efficiency of police expenditure, and the difference between the two coefficients measures the effect of crime control externality on that.

Based on the results in Table 4, the fiscal externality created by fiscal decentralization, including both police and welfare decentralization, is measured by the coefficient to $FisDec_{Pit}$ for violent crime, that is, -5.5920. The crime control externality is measured as the difference between coefficients, that is, 3.6380. It means, ceteris paribus, the fiscal decentralization increases by one unit, the crime rate will decrease by 5.59% because of the fiscal competition. Simultaneously, the externality in crime control will increase the crime rate by 3.64%.

6 Conclusion

By far, let us look back to the questions raised in the beginning of the paper. What are the empirical findings about the impact of fiscal decentralization on the crime rate? Based on the findings reported above, we conclude that fiscal decentralization can lower the crime rate and promote public safety. We have examined the effect on total crime, violent crime and property crime. The result indicates that the crime rate is strongly lowered in the process of decentralization. Furthermore, the crime reduction effect of fiscal decentralization is larger to immobile crime than mobile crime, the estimation is robust when we use alternative measures of decentralization, and change the dependent variable to six sub-categories of crime. Based on the estimation, how can we explain all the empirical findings?

We mainly interpret the effect by two kinds of externalities: fiscal externality and crime control ex-

ternality. In a decentralized setting, the fiscal competition motivates local governments to raise the size and X-efficiency of public expenditure, so that improves the public security. However, the crime control externality, such as cost inefficiency in mobile crime control and free riding problem, might offset the impact of decentralization through competition. Then, the beneficial effect of fiscal decentralization on violent crime is larger than property crime, since property crime is more mobile, and suffers more from harmful externality in mobile crime control. That is why the difference in beneficial impact could be clearly observed in our estimation, and the results provide strong evidence to the fiscal externality and crime control externality in the fiscal decentralization.

Our main results bear important policy implications. Policymaker could take the fiscal decentralization as an efficient policy tool to promote public safety. When the fiscal system, especially the police and welfare system, is decentralized, jurisdictional competition can be introduced, and the crime rate can be better controlled. However, some externalities can also occur, especially to the mobile crime control. So the policymaker has to be careful about the "dark" side of fiscal decentralization, and the coordination in police and welfare policy between local governments is important to the success of such policy experiment.

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Appendix

Figure 1: Effect of Fiscal Decentralization on Crime

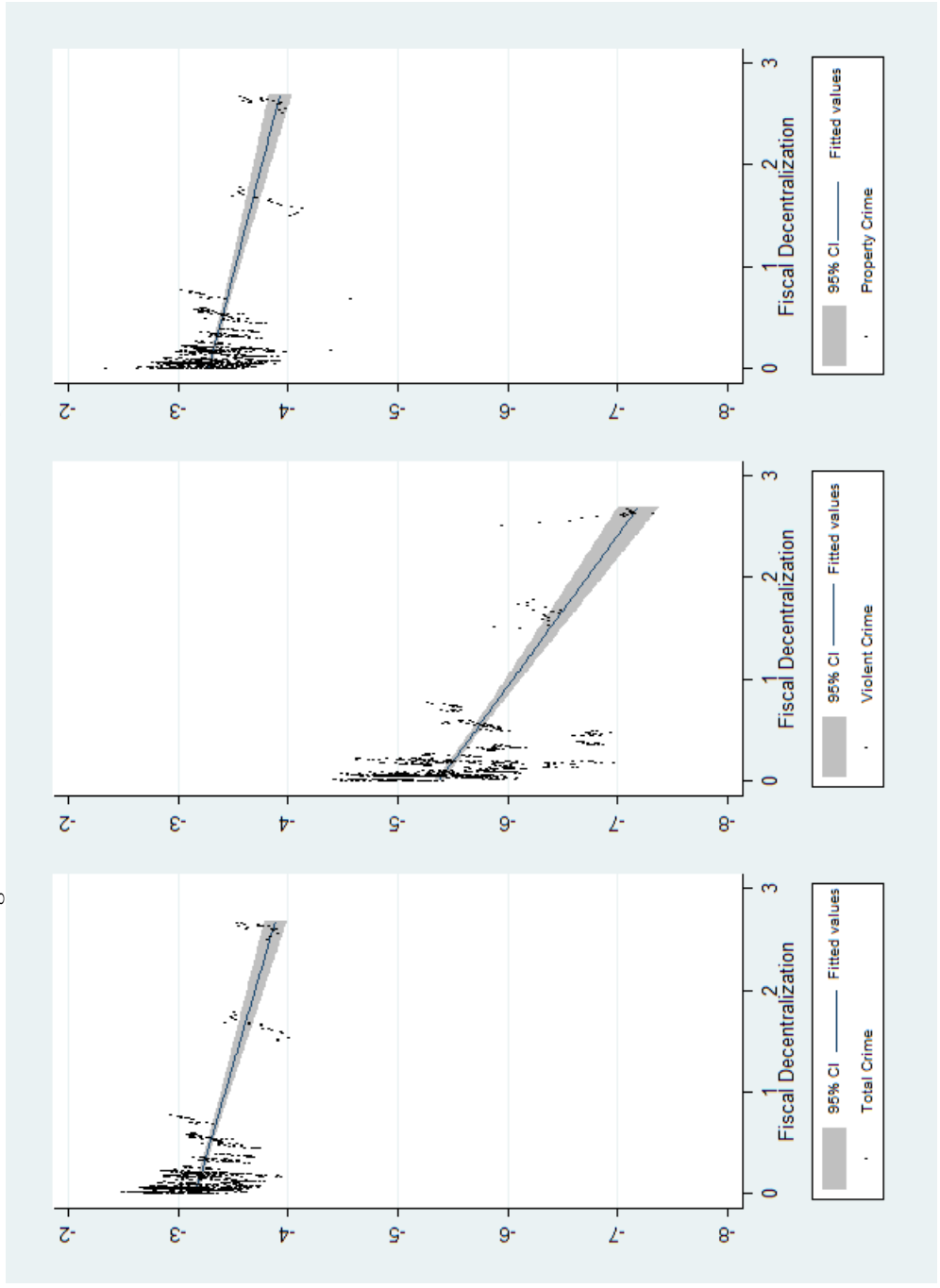

Figure 2: The Effect of Fiscal Decentralization on North Dakota

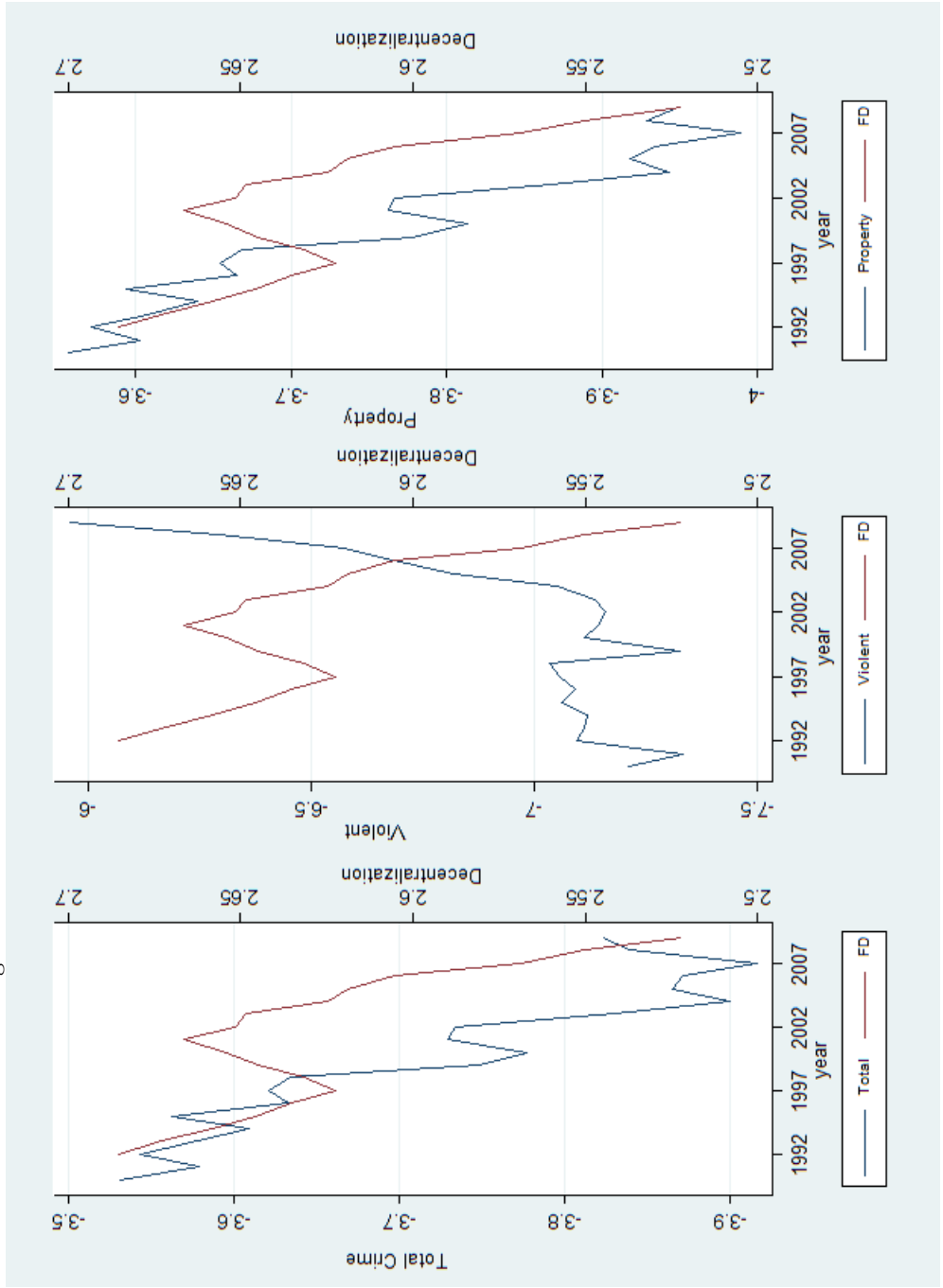

Table 1: Coefficients of Variation to Each Index

		Panel Data	Cross Section	Time Series
$FisDec_P$	Means	0.2425	0.243	0.2425
	Standard Deviation	0.4379	0.442	0.0087
	Coefficient of variation	1.8057	1.823	0.0358
	Min	0.0071	0.0095	0.2282
	Max	2.6856	2.6282	0.2581
$FisDec_G$	Means	0.0075	0.0075	0.0075
	Standard Deviation	0.0144	0.0140	0.002
	Coefficient of variation	1.9180	1.8643	0.2426
	Min	0.0002	0.0002	0.0057
	Max	0.1225	0.0843	0.0109
$FisDec_L$	Means	0.0167	0.0167	0.0167
	Standard Deviation	0.0156	0.0157	0.0000
	Coefficient of variation	0.9316	0.9409	0.0006
	Min	0.0002	0.0002	0.0167
	Max	0.0650	0.0650	0.0168

Table 2: Average Crime Rate by High and Low Fiscal Decentralization

	$FisDec_P$ <0.1	$FisDec_P$ >0.1	$FisDec_G$ <0.005	$FisDec_G$ >0.005	$FisDec_L$ <0.01	$FisDec_L$ >0.01
TotCri	0.0466	0.0392	0.0439	0.0404	0.0468	0.0389
VioCri	0.0057	0.0038	0.0052	0.0039	0.0051	0.0041
ProCri	0.0410	0.0353	0.0388	0.0364	0.0418	0.0346
Observations	413	547	534	426	424	536

Table 3: Effect of Fiscal Decentralization on Total Crime Rate

VARIABLES	(1)	(2)	(3)
$TotCri_{it-1}$	0.9430***	0.6960***	0.5380***
	(0.00484)	(0.0284)	(0.0476)
$FisDec_{Pit}$	0.4210***	-2.9780***	-2.7130***
	(0.0843)	(0.5510)	(0.6250)
$WelExp_{it}$		0.0507**	-0.1040***
		(0.0201)	(0.0284)
$PolExp_{it}$		-2.0300***	-1.2660
		(0.4530)	(0.7810)
$Prisonerpc_{it}$		-25.1000***	-22.6100**
		(8.8470)	(9.4310)
$Incpc_{it}$		-0.4270***	-0.2740***
		(0.0155)	(0.0254)
$Unemp_{it}$		-0.0052***	0.0004
		(0.0013)	(0.0027)
$Poverty_{it}$		0.0008	0.0021***
		(0.0005)	(0.0007)
$Educ_{it}$			0.0000
			(0.0010)
$Divorce_{it}$			0.0207***
			(0.0031)
$IncTax_{it}$			0.0049**
			(0.0023)
Arellano-Bond test	-3.4318	-2.7492	-1.7558
P-value	0.0006	0.0060	0.0791
Sargan test	47.9594	45.1841	40.9179
P-value	1.0000	1.0000	1.0000
Instrumental Variables	172	146	129
Observations	816	480	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Effect of Fiscal Decentralization on Crime (Extended)

VARIABLES	Property Crime			Violent Crime		
	(1)	(2)	(3)	(4)	(5)	(6)
$ProCri_{it-1}$	0.6160***	0.2360***	0.3310***			
	(0.0100)	(0.0263)	(0.0466)			
$VioCri_{it-1}$				0.9570***	0.5790***	0.4420***
				(0.0089)	(0.0391)	(0.0549)
$FisDec_{Pit}$	3.6370***	-1.7720***	-1.9540**	-0.5560***	-3.7290***	-5.5920***
	(0.2210)	(0.5680)	(0.7930)	(0.0942)	(0.7050)	(0.7560)
$WelExp_{it}$		0.0043	-0.1600***		0.0340	0.0957**
		(0.0175)	(0.0264)		(0.0361)	(0.0421)
$PolExp_{it}$		-2.4120***	-2.6120***		-1.2050	-2.3680
		(0.3440)	(0.4200)		(0.7960)	(1.4910)
$Prisonerpc_{it}$		-21.6700***	-23.6800**		-50.9000***	-34.6900***
		(7.5300)	(10.1100)		(14.8100)	(11.7500)
$Incpc_{it}$		-0.5730***	-0.2180***		-0.3480***	-0.2300***
		(0.0231)	(0.0319)		(0.0375)	(0.0411)
$Unemp_{it}$		0.0044***	0.0058***		0.0095***	0.0037
		(0.0014)	(0.0013)		(0.0020)	(0.0025)
$Poverty_{it}$		-0.0021***	-0.0020***		0.0053***	0.0053***
		(0.0004)	(0.00073)		(0.0011)	(0.0011)
$Educ_{it}$			-0.0057***			-0.0094***
			(0.0007)			(0.0011)
$Divorce_{it}$			0.0285***			0.0030
			(0.0046)			(0.0037)
$IncTax_{it}$			0.0268***			0.0202***
			(0.0049)			(0.0027)
Arellano-Bond test	-1.8769	-2.5491	-1.6124	-3.8681	-3.3794	-1.459
P-value	0.0605	0.0108	0.1069	0.0001	0.0007	0.1446
Sargan test	47.9455	44.2983	36.6431	47.3123	43.3970	37.9636
P-value	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Instrumental Variables	172	146	129	172	146	129
Observations	816	480	302	816	480	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Effect of Fiscal Decentralization on Crime (with interaction term)

VARIABLES	(1) Total Crime	(2) Property Crime	(3) Violent Crime
$TotCri_{it-1}$	0.5370***		
	(0.0536)		
$ProCri_{it-1}$		0.3330***	
		(0.0529)	
$VioCri_{it-1}$			0.3770***
			(0.0437)
$FisDec_{Pit}$	-2.9420***	-1.3740	-6.4080***
	(0.8190)	(0.8560)	(1.1540)
$PolExp_{it}$	-0.8880	-1.7690**	-2.1360*
	(0.7760)	(0.8440)	(1.1600)
$FisDec_{Pit} \times PolExp_{it}$	-1.7830*	-2.4220*	-3.1000**
	(1.0780)	(1.3290)	(1.5200)
$WelExp_{it}$	-0.1330**	-0.1560***	0.0260
	(0.0559)	(0.0407)	(0.0591)
$FisDec_{Pit} \times WelExp_{it}$	-0.0581	-0.2020**	0.0767
	(0.1390)	(0.0906)	(0.1890)
$Prisonerpc_{it}$	-21.1000*	-25.2300**	-35.6500**
	(12.0600)	(12.3000)	(15.3000)
$Incpc_{it}$	-0.2990***	-0.2250***	-0.2920***
	(0.0382)	(0.0357)	(0.0538)
$Unemp_{it}$	-0.0009	0.0051***	0.0031
	(0.0024)	(0.0015)	(0.0028)
$Poverty_{it}$	0.0025***	-0.0015**	0.0056***
	(0.0007)	(0.0007)	(0.0012)
$Educ_{it}$	0.0000	-0.0044***	-0.0081***
	(0.0009)	(0.0010)	(0.0014)
$Divorce_{it}$	0.0238***	0.0315***	0.0009
	(0.0030)	(0.0044)	(0.0042)
$IncTax_{it}$	0.0064*	0.0288***	0.0203***
	(0.0037)	(0.0057)	(0.0021)
Arellano-Bond test	-1.8273	-1.7406	-1.1509
P-value	0.0677	0.0818	0.2498
Sargan test	42.404	36.9762	34.7565
P-value	1.0000	1.0000	1.0000
Instrumental Variables	131	131	131
Observations	302	302	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Effect of Fiscal Decentralization on Crime (only interaction term)

VARIABLES	(1) Total Crime	(2) Property Crime	(3) Violent Crime
$TotCri_{it-1}$	0.4490***		
	(0.0509)		
$ProCri_{it-1}$		0.2990***	
		(0.0484)	
$VioCri_{it-1}$			0.4260***
			(0.0646)
$WelExp_{it}$	-0.0409	-0.1280***	0.0472
	(0.0380)	(0.0373)	(0.0507)
$FisDec_{Pit} \times WelExp_{it}$	-0.3170***	-0.2370***	-0.2850***
	(0.0765)	(0.0916)	(0.1010)
$PolExp_{it}$	-1.3940*	-2.1690***	-0.7390
	(0.7660)	(0.8050)	(0.8710)
$FisDec_{Pit} \times PolExp_{it}$	-3.2020***	-2.0090	-4.6560***
	(1.1520)	(1.2980)	(0.9950)
$Prisonerpc_{it}$	-18.0500**	-13.8300	-3.6280
	(8.5060)	(9.8590)	(11.8200)
$Incpc_{it}$	-0.2570***	-0.2100***	-0.1190***
	(0.0313)	(0.0345)	(0.0442)
$Unemp_{it}$	-0.0008	0.0058***	0.0039
	(0.0024)	(0.0015)	(0.0026)
$Poverty_{it}$	0.0025***	-0.0016**	0.0066***
	(0.0007)	(0.0007)	(0.0012)
$Educ_{it}$	0.0002	-0.0046***	-0.0062***
	(0.0009)	(0.0010)	(0.0012)
$Divorce_{it}$	0.0225***	0.0334***	0.0012
	(0.0023)	(0.0041)	(0.0041)
$IncTax_{it}$	0.0001	0.0275***	0.0176***
	(0.0036)	(0.0057)	(0.0024)
Arellano-Bond test	-1.5677	-1.7564	-1.1598
P-value	0.1169	0.0790	0.2461
Sargan test	40.2339	39.4428	40.0963
P-value	1.0000	1.0000	1.0000
Instrumental Variables	130	130	130
Observations	302	302	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Effect of Fiscal Decentralization on Each Kind of Crime

VARIABLES	(1) Murder	(2) Rape	(3) Robbery	(4) Burglary	(5) Larceny Theft	(6) Vehicle Theft
$Murder_{it-1}$	-0.3020***					
	(0.0297)					
$Rape_{it-1}$		0.1630***				
		(0.0441)				
$Robbery_{it-1}$			0.2890***			
			(0.0289)			
$Burglary_{it-1}$				-0.3200***		
				(0.0534)		
$Larceny_{it-1}$					0.0206	
					(0.0963)	
$Motheft_{it-1}$						0.5230***
						(0.0457)
$PolExp_{it}$	-2.3560	-0.9160*	0.3210	-7.2650***	-4.9350***	0.1580
	(1.5600)	(0.4700)	(1.8800)	(1.0880)	(1.4210)	(1.3880)
$FisDec_{P\,it} \times PolExp_{it}$	-9.3470***	-9.6400***	-6.8050***	-0.3560	-7.3350***	-3.6500
	(0.9640)	(1.1500)	(1.2430)	(2.0700)	(2.4260)	(2.2680)
$WelExp_{it}$	0.1580	-0.0262	-0.1560**	0.3080***	-0.6430***	-0.0857
	(0.1240)	(0.0458)	(0.0778)	(0.1050)	(0.1260)	(0.1110)
$FisDec_{P\,it} \times WelExp_{it}$	-2.239***	-0.2320	0.7410***	-0.0978	-0.6900***	-0.1850
	(0.2050)	(0.1670)	(0.1820)	(0.1720)	(0.2520)	(0.3450)
$Prisonerpc_{it}$	-81.8300**	-40.3100**	-16.7900	-27.9900	8.0530	9.9060
	(40.8700)	(19.2900)	(17.0400)	(22.2700)	(19.8700)	(20.9500)
$Incpc_{it}$	-0.3590	0.0659***	-0.3970***	-1.2700***	0.4670***	-0.7080***
	(0.0738)	0.0438	(0.0476)	(0.0939)	(0.0868)	(0.0588)
$Unemp_{it}$	0.0250***	0.0184***	0.0019	-0.0133**	0.0349***	-0.0248***
	(0.0072)	(0.0029)	(0.0043)	(0.0061)	(0.0052)	(0.0051)
$Poverty_{it}$	-0.0018	0.0082***	0.0099***	0.0075***	-0.0173***	0.0032***
	(0.0026)	(0.0018)	(0.0015)	(0.0014)	(0.0029)	(0.0011)
$Educ_{it}$	-0.0006	-0.0061***	-0.0082***	-0.0034	-0.0195***	0.0000
	(0.0044)	(0.0009)	(0.0015)	(0.0027)	(0.0032)	(0.0014)
$Divorce_{it}$	0.0560***	-0.0035	-0.0032	0.0686***	0.0909***	0.0221***
	(0.0078)	(0.0061)	(0.0104)	(0.0142)	(0.0055)	(0.0061)
$IncTax_{it}$	0.0526***	-0.0102**	0.0382***	0.1780***	0.1010***	-0.0246**
	(0.0146)	(0.0040)	(0.0027)	(0.0119)	(0.0197)	(0.0104)
Arellano-Bond test	-2.1159	-2.2003	-.65088	-1.0864	-1.7968	-2.0006
P-value	0.0344	0.0278	0.5151	0.2773	0.0724	0.0454
Sargan test	32.9626	41.4180	40.2613	33.8212	37.1243	36.1182
P-value	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Instrumental Varialbes	130	130	130	130	130	130
Observations	302	302	302	302	302	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A1: Documentation for Variables

Variable	Definition	Time and State	Source
TotCri	Log form of total crime per capita excluding arson	90-92,94-09, 48 states	Uniform Crime Reporting Program
ProCri	Log form of property crime per capita excluding Arson	90-92,94-09, 48 states	Uniform Crime Reporting Program
VioCri	Log form of violent crime per capita excluding Arson	90-92,94-09, 48 states	Uniform Crime Reporting Program
Murder	Log form of murder per capita	90-09, 48 states	Statistical Abstract
Larceny	Log form of larceny per capita	90-09, 48 states	Statistical Abstract
Motheft	Log form of vehicle theft per capita	90-09, 48 states	Statistical Abstract
Robbery	Log form of robbery per capita	90-09, 48 states	Statistical Abstract
Burglary	Log form of burglary per capita	90-09, 48 states	Statistical Abstract
Rape	Log form of rape per capita	90-09, 48 states	Statistical Abstract
WelExp	Total public welfare per thousand persons (Thousands of dollar)	91-99,01,03-05, 07-08, 48 states	Statistical Abstract
PolExp	Total fire protection expenditure per thousand persons (Thousands of dollar)	91-99,01,03-05, 07-08, 48 states	Statistical Abstract
Incpc	Disposable income per capita (Dollar)	90-09 48 states	Bureau of Economic Analysis
Prisonerpc	Prisoner per thousand persons	92-09 48 states	Statistical Abstract
Unemp	Unemployment rate	90-09, 48 states	Statistical Abstract
Educ	Share of high school graduate or more	93-09, 48 states	Statistical Abstract
IncTax	Top marginal personal income tax rate	90-09, 48 states	Statistical Abstract
Divorce	Divorce rate	90-95,97-09, 48 states	Center for divorce control and prevention
$FisDec_P$	Number of local government over population (millions of persons)	92-09, 48 states	Statistical Abstract
$FisDec_G$	Number of local government over real GDP (thousand of millions of dollars)	92-09, 48 states	Statistical Abstract
$FisDec_L$	Number of local government over land area (1000 sq. miles)	92-09, 48 states	Statistical Abstract
Poverty	Share of people with income lower than the standard	90-09, 48 states	Statistical Abstract

Note: Public Expenditure and Income have been adjusted to the standard year, 1990

Table A2: Descriptive Statistics

	Full Sample					Benchmark Sample				
Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
TotCri	960	-3.20	0.29	-4.01	-2.44	528	-3.24	0.28	-4.01	-2.52
VioCri	960	-5.99	0.60	-8.00	-4.86	528	-5.55	0.55	-7.33	-4.49
ProCri	960	-3.32	0.29	-4.57	-2.35	528	-3.35	0.28	-4.57	-2.64
Murder	960	-9.98	0.65	-13.38	-8.50	528	-10.02	0.63	-13.38	-8.53
Larceny	960	-3.70	0.41	-10.62	-3.06	528	-3.74	0.49	-10.62	-3.06
Motheft	960	-5.75	0.72	-13.08	-4.50	528	-5.76	0.69	-12.87	-4.50
Robbery	960	-6.98	0.90	-9.67	-5.08	528	-7.01	0.87	-9.67	-5.36
Burglary	960	-4.89	0.50	-12.50	-2.68	528	-4.96	0.56	-12.50	-4.09
Rape	960	-8.01	0.32	-9.04	-7.04	528	-8.03	0.31	-9.02	-7.15
WelExp	720	676.27	213.77	202.00	1538.00	528	716.04	218.25	202.00	1538.00
PolExp	720	57.64	23.17	16.19	161.37	528	60.51	23.75	17.87	161.37
Incpc	960	1.86	0.30	1.19	2.91	528	1.90	0.29	1.32	2.91
Unemp	960	5.27	1.60	2.20	14.00	528	4.84	1.15	2.50	8.90
Educ	816	84.68	4.47	68.50	93.00	528	84.70	4.34	71.00	92.70
Prisonerpc	864	3.86	1.62	0.75	9.01	528	3.94	1.620	0.83	9.01
IncTax	960	5.62	3.05	0.00	12.00	528	5.58	3.08	0.00	12.00
Divorce	831	4.33	1.23	2.00	11.40	481	4.22	1.16	2.00	10.40
$FisDec_P$	864	0.24	0.44	0.01	2.69	528	0.24	0.44	0.01	2.67
$FisDec_L$	864	16.74	15.59	0.16	65.00	528	16.74	15.60	0.16	65.00
$FisDec_G$	864	7.50	14.39	0.15	122.54	528	7.18	13.69	0.15	113.92
Poverty	960	12.56	3.56	4.50	26.40	528	12.24	3.31	5.30	25.70

Table A3: Effect of Fiscal Decentralization on Crime ($FisDec_G$)

VARIABLES	(1) Property Crime	(2) Violent Crime	(3) Property Crime	(4) Violent Crime	(5) Property Crime	(6) Violent Crime
$ProCri_{it-1}$	0.3590***		0.3290***		0.3340***	
	(0.0384)		(0.0406)		(0.0411)	
$VioCri_{it-1}$		0.4000***		0.3900***		0.4260***
		(0.0368)		(0.0598)		(0.0514)
$FisDec_{Git}$	-10.2700***	-9.0320**	-6.3020*	-0.2150		
	(3.9570)	(3.8170)	(3.2910)	(6.6860)		
$PolExp_{it}$	-2.3480***	-1.5660**	-2.5350**	0.2590	-1.9780**	0.0240
	(0.6150)	(0.7910)	(1.0410)	(0.3960)	(0.9910)	(0.2950)
$FisDec_{Git} \times PolExp_{it}$			-52.0800	-169.5000***	-64.2500**	-127.2000***
			(31.9900)	(47.1100)	(32.5800)	(23.2600)
$WelExp_{it}$	-0.1860***	0.0467	-0.1330***	0.1170**	-0.1470***	0.0874*
	(0.0287)	(0.0329)	(0.0450)	(0.0591)	(0.0427)	(0.0479)
$FisDec_{Git} \times WelExp_{it}$			-7.5260*	-13.9400**	-8.4580**	-10.4600***
			(3.9070)	(5.6130)	(4.2810)	(2.2230)
$Prisonerpc_{it}$	-20.3800*	-17.4100	-28.1000**	-25.4000	-20.3800*	-15.2100
	(11.8200)	(15.9700)	(13.2800)	(31.2900)	(12.3700)	(11.2200)
$Incpc_{it}$	-0.2340***	-0.1360***	-0.2560***	-0.1680***	-0.2340***	-0.1410***
	(0.0275)	(0.0451)	(0.0341)	(0.0622)	(0.0319)	(0.0403)
$Unemp_{it}$	0.0054***	0.0015	0.0041**	0.0044	0.0058***	0.0055**
	(0.0014)	(0.0031)	(0.0019)	(0.0030)	(0.0017)	(0.0023)
$Educ_{it}$	-0.0045***	-0.0091***	-0.0051***	-0.0088***	-0.0049***	-0.0086***
	(0.00099)	(0.0011)	(0.0010)	(0.0012)	(0.0010)	(0.0014)
$IncTax_{it}$	0.0242***	0.0162***	0.0237***	0.0143***	0.0243***	0.0150***
	(0.0041)	(0.0029)	(0.0032)	(0.0023)	(0.0032)	(0.0019)
$Divorce_{it}$	0.0291***	-0.0014	0.0311***	-0.0004	0.0343***	0.0030
	(0.0036)	(0.0042)	(0.0032)	(0.0057)	(0.0027)	(0.0045)
$Poverty_{it}$	-0.0016**	0.0061***	-0.0012	0.0069***	-0.0017**	0.0068***
	(0.0008)	(0.0012)	(0.0008)	(0.0013)	(0.0007)	(0.0012)
Arellano-Bond test	-1.7798	-1.2086	-1.8095	-.87172	-1.9089	-1.0686
P-value	0.0751	0.2268	0.0704	0.3834	0.0563	0.2852
Sargan test	37.2751	37.9952	37.3181	40.6357	40.7210	39.5473
P-value	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Instrumental Variables	129	129	131	131	130	130
Observations	302	302	302	302	302	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A4: Effect of Fiscal Decentralization on Each Kind of Crime

VARIABLES	(1) Murder	(2) Rape	(3) Robbery	(4) Burglary	(5) Larceny Theft	(6) Vehicle Theft
$Murder_{it-1}$	-0.2980***					
	(0.0154)					
$Rape_{it-1}$		0.1600***				
		(0.0531)				
$Robbery_{it-1}$			0.1760***			
			(0.0218)			
$Burglary_{it-1}$				-0.2340***		
				(0.0830)		
$Larceny_{it-1}$					-0.1200**	
					(0.0605)	
$Motheft_{it-1}$						0.4980***
						(0.0374)
$FisDec_{Pit}$	2.2310***	-2.6280**	-5.1270***	0.5830	5.7940**	-4.1090***
	(0.7660)	(1.2600)	(0.8080)	(1.3620)	(2.3650)	(1.2060)
$WelExp_{it}$	-0.5030***	0.0503	0.1310**	0.2840***	-0.6340***	-0.0592
	(0.1130)	(0.0495)	(0.0595)	(0.0797)	(0.1200)	(0.0578)
$PolExp_{it}$	-0.5020	-3.7960***	-3.3520**	-4.3270**	-5.9860***	-2.7950***
	(1.3450)	(0.4840)	(1.3410)	(1.9530)	(1.3350)	(1.0450)
$Prisonerpc_{it}$	-54.8100*	-68.2500***	-48.0000**	-47.3700*	34.9900	-37.1700*
	(30.3700)	(13.0600)	(21.5200)	(25.5400)	(22.4800)	(20.1700)
$Incpc_{it}$	-0.4030***	0.0965***	-0.3870***	-1.1300***	0.4440***	-0.7250***
	(0.0445)	(0.0280)	(0.0627)	(0.1010)	(0.1240)	(0.0535)
$Unemp_{it}$	0.0234***	0.0152***	0.0032	-0.0119**	0.0355***	-0.0289***
	(0.0065)	(0.0034)	(0.0041)	(0.0061)	(0.0048)	(0.0037)
$Poverty_{it}$	-0.0004	0.0083***	0.0078***	0.0055***	-0.0153***	0.0022**
	(0.0020)	(0.0014)	(0.0015)	(0.0011)	(0.0027)	(0.0010)
$Educ_{it}$	0.0012	-0.0067***	-0.0105***	-0.0028	-0.0187***	-0.0010
	(0.0035)	(0.0013)	(0.0009)	(0.0024)	(0.0027)	(0.0019)
$Divorce_{it}$	0.0479***	-0.0016***	-0.0098	0.0716***	0.0846***	0.0121*
	(0.0078)	(0.0067)	(0.0075)	(0.0120)	(0.0050)	(0.0069)
$IncTax_{it}$	0.0587***	-0.0158***	0.0354***	0.1790***	0.0687***	-0.0187*
	(0.0095)	(0.0053)	(0.0035)	(0.0096)	(0.0195)	(0.0111)
Arellano-Bond test	-1.1446	-2.6345	-.96421	-1.0964	-1.4224	-2.1414
P-value	0.2524	0.0084	0.3349	0.2729	0.1549	0.0322
Sargan test	35.5568	33.0459	40.5675	29.9734	35.7177	34.0597
P-value	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Instrumental Variables	129	129	129	129	129	129
Observations	302	259	302	302	302	302

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A5: Coefficient of Variation for $FisDec_P$

State	Means	St.Dev	Coef.Var	Min	Max
AL	0.1004	0.0024	0.0238	0.0963	0.1054
AR	0.1854	0.0083	0.0448	0.1733	0.2024
AZ	0.0171	0.0024	0.1421	0.0142	0.0220
CA	0.0139	0.0006	0.0458	0.0129	0.0149
CO	0.0632	0.0065	0.1031	0.0543	0.0761
CT	0.0522	0.0013	0.0244	0.0503	0.0539
DE	0.0723	0.0057	0.0788	0.0639	0.0820
FL	0.0247	0.0021	0.0851	0.0220	0.0286
GA	0.0655	0.0073	0.1112	0.0556	0.0786
IA	0.3247	0.0074	0.0228	0.3122	0.3378
ID	0.1537	0.0169	0.1101	0.1287	0.1857
IL	0.2204	0.0057	0.0259	0.2134	0.2322
IN	0.2590	0.0102	0.0393	0.2438	0.2774
KS	0.7340	0.0293	0.0399	0.6971	0.7819
KY	0.1061	0.0058	0.0551	0.0971	0.1155
LA	0.0682	0.0012	0.0181	0.0660	0.0702
MA	0.0557	0.0014	0.0243	0.0539	0.0582
MD	0.0293	0.0013	0.0445	0.0274	0.0315
ME	0.3813	0.0108	0.0283	0.3668	0.3956
MI	0.1800	0.0035	0.0192	0.1765	0.1874
MN	0.5397	0.0285	0.0527	0.5003	0.5910
MO	0.2252	0.0090	0.0400	0.2120	0.2409
MS	0.1047	0.0035	0.0337	0.1000	0.1121
MT	0.1416	0.0064	0.0451	0.1311	0.1550
NC	0.0657	0.0049	0.0745	0.0580	0.0748
ND	2.6282	0.0430	0.0164	2.5219	2.6856
NE	0.5746	0.0214	0.0372	0.5428	0.6118
NH	0.1901	0.0109	0.0572	0.1778	0.2093
NJ	0.0676	0.0024	0.0354	0.0646	0.0719
NM	0.0546	0.0032	0.0587	0.0496	0.0614
NV	0.0095	0.0020	0.2060	0.0071	0.0133
NY	0.0819	0.0015	0.0183	0.0801	0.0848
OH	0.1985	0.0029	0.0147	0.1948	0.2045
OK	0.1711	0.0067	0.0390	0.1598	0.1826
OR	0.0703	0.0049	0.0694	0.0635	0.0799
PA	0.2082	0.0031	0.0151	0.2023	0.2133
RI	0.0374	0.0008	0.0210	0.0363	0.0385
SC	0.0666	0.0049	0.0740	0.0584	0.0743
SD	1.6607	0.0805	0.0485	1.5178	1.7943
TN	0.0606	0.0035	0.0571	0.0550	0.0671
TX	0.0566	0.0052	0.0915	0.0487	0.0659
UT	0.1038	0.0101	0.0971	0.0889	0.1241
VA	0.0322	0.0022	0.0692	0.0289	0.0359
VT	0.4707	0.0161	0.0343	0.4513	0.5011
WA	0.0466	0.0027	0.0589	0.0421	0.0519
WI	0.3443	0.0126	0.0366	0.3265	0.3679
WV	0.1277	0.0011	0.0088	0.1256	0.1296
WY	0.1946	0.0080	0.0409	0.1768	0.2080
Avearge	0.2425				
Standard Deviation	0.4420				
Coefficient of Variation	1.8226				
Min	0.0095				
Max	2.6282				